

VIA FACSIMILE (703) 872-9306

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of the Claims:

1. (Canceled) An automated rotary microtome blade changing apparatus, comprising
 - (a) an upper stage adapted to releasably engage a supply and a waste cartridge, said upper stage having a loading segment adapted to engage and move blades contained within said supply cartridge into a cutting position;
 - (b) clamping means for releasably holding said blades in place for cutting operations;
 - (c) power means for driving the movement of blades and clamping mechanisms; and
 - (d) electronic control means for integrating all of the functions of the apparatus.
2. (Canceled) An improved blade supply cartridge wherein said cartridge comprises a body, a spring, a dispensing tab, and blades, wherein said improvement comprises a toothed portion on said dispensing tab adapted to engage mating gear teeth on said blade changer.
3. (Canceled) An improved blade supply cartridge wherein said cartridge comprises a body, a spring, a dispensing tab, and blades, wherein said improvement comprises a touch memory device in contact with said cartridge, said touch memory device programmed to contain content information relating to said cartridge.
4. (Canceled) The blade supply cartridge of claim 3 wherein said touch memory device comprises a Dallas Semiconductor DS1985 F5 16 Kbit add-only touch memory device.
5. (Canceled) The blade supply cartridge of claims 2 and 3 wherein the cartridge also has an entrance for accepting spent blades.
6. (Canceled) The blade supply cartridge of claims 2 and 3 wherein the cartridge has exterior alignment slots that engage with guides on the upper stage, thereby enabling precise and reproducible alignment.

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7. (Canceled) The blade supply cartridge of claim 5 wherein said exterior alignment slots position the cartridge in either the supply or waste position on the upper stage.
8. (Canceled) The apparatus of claim 1 wherein said clamping means comprises:
- (a) a fixed support plate adapted to support a first side of said blade, said fixed support plate in intimate contact with the upper stage body;
 - (b) a clamping plate having a clamping surface capable of engaging a second side of said blade when the clamping plate is pivoted into the clamping position;
 - (c) a pivot means for supporting a midpoint region of said clamping plate, said pivot means itself being integral to or supported by said upper stage;
 - (d) a clamping cam that engages said clamping plate, said clamping cam being mounted on a drive shaft and providing motion orthogonal to drive shaft axis thereby pivoting the clamping plate about said pivot point.
9. (Canceled) The apparatus of claim 1 wherein said power means comprises
- (a) an electric motor mounted proximate to said drive shaft;
 - (b) a motor pulley mounted between said drive shaft and said electric motor and interconnected therebetween so that power from said motor is transferred to said drive shaft; and
 - (c) a drive shaft for turning said clamping and said loading cams.
10. (Canceled) The apparatus of claim 1 wherein said electronic control means comprises a microcontroller in electrical communication with a switch located on a keypad, a power source, a motor, and a touch memory device located on said cartridges.
11. (Canceled) The apparatus of claim 10 wherein said power source is a DC battery.
12. (Canceled) The apparatus of claim 10 wherein said keypad contains a push-button switch for signaling the microcontroller to move a new blade into position.

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13. (Canceled) The apparatus of claim 10 wherein said safety interlocks comprise solenoid switches mechanically coupled to latches.

14. (Previously amended) An automated rotary microtome blade changing apparatus, comprising

(a) an upper stage adapted to releasably engage a supply and a waste cartridge, said upper stage including a loading segment adapted to engage and move blades contained within said supply cartridge into a cutting position;

(b) means for releasably clamping ~~means for releasably holding~~ said blades in place for cutting operations, comprising

a fixed support plate adapted to support a first side of said blade, said fixed support plate in intimate contact with the upper stage body,

a clamping plate having a clamping surface capable of engaging a second side of said blade when the clamping plate is pivoted into the clamping position,

a pivot means for supporting a midpoint region of said clamping plate, said pivot means itself being integral to or supported by said upper stage,

a clamping cam that engages said clamping plate, said clamping cam being mounted on a drive shaft and providing motion orthogonal to said drive shaft axis thereby pivoting the clamping plate about said pivot point;

(c) ~~power~~ means for driving powering the movement of blades and clamping mechanisms, comprising

an electric motor mounted proximate to said drive shaft,

a motor pulley mounted between said drive shaft and said electric motor and interconnected therebetween so that power from said motor is transferred to said drive shaft; and

(d) means for electronically controlling ~~electronic control means for integrating~~ all of the functions of the apparatus, comprising

a microcontroller in electrical communication with a switch on a keypad, a power source, a motor, and safety interlocks.

15. (Previously amended) An automated rotary microtome blade changing apparatus, comprising

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(a) an upper stage adapted to releasably engage a supply and a waste cartridge, said upper stage including a reverser shuttle adapted to engage and move blades contained within said supply cartridge into a cutting position;

(b) means for releasably clamping ~~means for releasably holding~~ said blades in place for cutting operations, comprising a fixed support plate adapted to support a first side of said blade, said fixed support plate in intimate contact with the upper stage body, a clamping plate having a clamping surface capable of engaging a second side of said blade when the clamping plate is pivoted into the clamping position, a pivot means for supporting a midpoint region of said clamping plate, said pivot means itself being integral to or supported by said upper stage, a clamping cam that engages said clamping plate, said clamping cam being mounted on a drive shaft and providing motion orthogonal to said drive shaft axis thereby pivoting the said clamping plate about said pivot point;

(c) ~~power~~ means for ~~driving~~ powering the movement of blades and clamping mechanisms, comprising an electric motor adapted to engage said drive shaft, a drive gear mounted on said drive shaft, said drive gear transmitting power to said clamping means and said reverser shuttle; and

(d) means for electronically controlling ~~electronic control means for integrating~~ all of the functions of the apparatus, comprising a microcontroller in electrical communication with a switch on a keypad, a power source, said motor, and safety interlocks.